

Low Cost Cryocooler Control Electronics for Small Space Platforms, Phase I

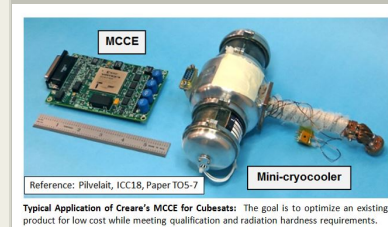
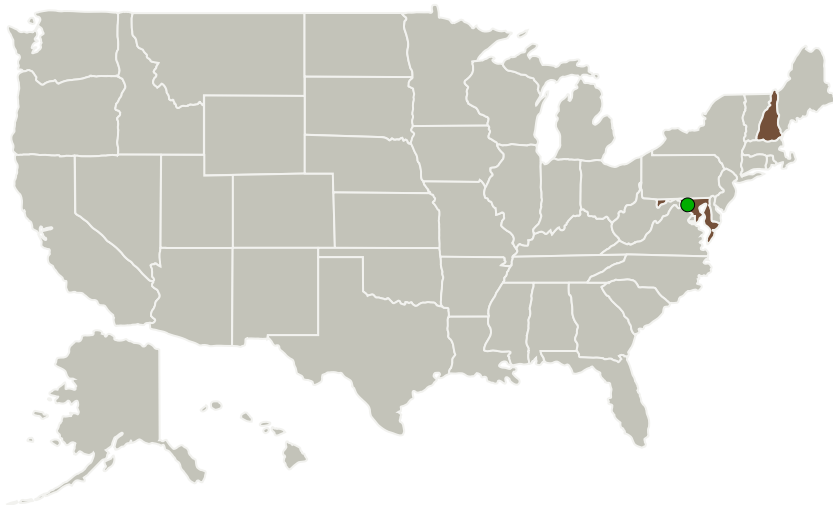
Completed Technology Project (2017 - 2017)



Project Introduction

Future NASA space science missions will utilize small satellites. Many of these missions will require cryocoolers for cooling detectors, sensors, shields, and telescopes. For Class C and D missions, the cryocooler technical requirements for performance, size, and mass, coupled with the programmatic requirements for minimal cost and development time, are extremely challenging. Flight ready cryocoolers and associated control electronics that have been developed for traditional satellites do not meet technical, cost, or schedule requirements for future small space platforms. Creare proposes to develop low cost cryocooler control electronics that leverage technologies and capabilities previously demonstrated on prior programs. During Phase I, we will develop a set of requirements, design low cost electronics to meet these requirements, and assess production cost. We will also work closely with a leading developer of low cost infrared space subsystems to ensure compatibility and readiness for upcoming missions. During Phase II, we will work closely with our partners to fabricate and qualify protoflight electronics with representative cryocoolers. Successful completion of this program will enable advanced sensor systems for space-borne science, surveillance, and reconnaissance.

Primary U.S. Work Locations and Key Partners



Low Cost Cryocooler Control Electronics for Small Space Platforms, Phase I Briefing Chart Image


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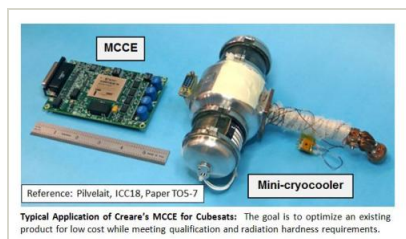
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Organizations Performing Work	Role	Type	Location
Creare LLC	Lead Organization	Industry	Hanover, New Hampshire
 Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland

Primary U.S. Work Locations	
Maryland	New Hampshire

Images



Briefing Chart Image

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(<https://techport.nasa.gov/image/131886>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Creare LLC

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

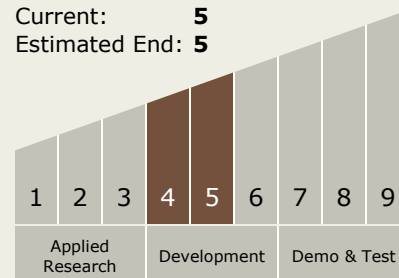
Carlos Torrez

Principal Investigator:

Bruce Pilvelait

Technology Maturity (TRL)

Start: 4
Current: 5
Estimated End: 5



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Technology Areas

Primary:

- TX08 Sensors and Instruments
 - └ TX08.1 Remote Sensing Instruments/Sensors
 - └ TX08.1.6 Cryogenic / Thermal